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THE BLACK ROOT DISEASE IN COFFEE SEED BEDS.

By C. M. Tucker.

The meritorious practice of planting coffee in seed beds for transplanting is gradually superseding the old method of transplanting volunteer seedlings from under bearing trees. The advantages of growing the seedlings in seed beds are well known and will not be discussed here. It is believed advisable, however, to point out the possibility that seed beds may be a source of infection by root disease fungi, and to stress the necessity for care in the selection of a seed bed site and in the inspection of the seedlings for root disease.

The site for the seed bed is often an open space in an old plantation, and the location may be excellent if there is no root disease in the property; however, the distribution of the black root disease fungus is so general over the island that it is probable that a majority of the plantations are infected to some extent. It is very possible that the open space selected has no coffee trees as a result of root disease, and, since the fungus may live a saprophytic existence on the organic matter in the soil, infected soils may remain infective indefinitely. Seedlings in infected soil become diseased. Should infection occur early, the seedlings are killed before they reach transplanting size. In cases of later infection the seedlings may be transplanted before the symptoms of disease have become manifest. In the latter case the disease may be scattered over large areas of healthy coffee plantings when the infected seedlings are used to replace missing trees. New plantations may be infected so heavily that profitable production will never be attained.

During the past four months this station has received, from widely separated localities, specimens of dying seedlings from seed beds. In each case the plants were invaded by the black root disease fungus (*Rosellinia* sp.), and the black root disease is the type under direct consideration; our knowledge of the white root disease indicates that these observations may apply equally to it.

In the seed bed the earliest symptom of root disease is the wilting of the leaves. When a diseased plant is removed, the fungus may be seen on the roots, the crown and the lower part of the trunk. Dark brown to black strands or crusts

are visible on the exterior. Upon cutting into the wood, small black dots or streaks are found, and the bark is usually underlaid by black, matted mycelium.

All the seedlings in infected seed beds should be destroyed. The use of apparently healthy plants from infected seed beds is extremely hazardous, since the plants may be in the early stages of infection and no evidence of the disease apparent. When such a plant is transplanted, the disease will continue to develop. The danger of carrying small amounts of infected soil from the seed bed to the plantation is also too great to be overlooked.

In selecting a site for a seed bed, choose a location in which coffee has not been grown. If organic matter is to be used as a mulch or to be mixed with the soil, do not use rakings from an old coffee plantation. Decaying organic matter is as likely to spread the fungus as the soil itself.

Most coffee planters are familiar with root disease. Those who are not should have their seed beds examined by their agricultural agent. The agents should have the names and addresses of planters who have healthy seedlings, for the assistance of those who may find it necessary to discard their own seedlings; there should be no hesitancy in destroying infected seed beds, for the loss is insignificant when compared with the far greater losses which may occur in an infected plantation.

The measures to be taken for the prevention of infection from seed beds may be stated briefly as follows:

1. Locate the seed bed where coffee has not been grown.
2. Do not use organic matter from coffee plantations in the seed bed.
3. Transplant from healthy seed beds only. Destroy all plants in infected seed beds.
4. In case of doubt as to the presence of root disease, consult the agricultural agent or send specimens of doubtful seedlings to the Insular Experiment Station at Rio Piedras or to the Federal Experiment Station at Mayaguez.

